

**Notice of Allowability**

Application No.

10/648,415

Examiner

Helen O. Chu

Applicant(s)

BADDING ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 5/29/2007.
2. ☒ The allowed claim(s) is/are 1-19, 24 and 25.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_

### EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Svetlana Z. Short on August 31, 2007.

The application has been amended as follows:

Claims 20-23 are cancelled.

In Claim 1-19, 24-25 delete "."

In Claim 1, Line 4 delete "situated (i) adjacent to said electrolyte, (ii) not in electrical contact with said at least one electrode," insert "wherein the component is not in contact with electrodes and thereby not conductive and"

In Claim 1, Line 9 insert "(d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically active component"

In Claim 1, Line 9 delete "(d)" insert "(e)"

In Claim 5, line 4 delete "situated adjacent to said electrolyte," insert "wherein the component is not in contact with electrodes and thereby not conductive and"

In Claim 5, line 9 insert "(d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically active component"

In Claim 5, Line 9 delete "(d)" insert "(e)"

In Claim 5, Line 14 delete "("

In Claim 5, Line 14 delete "yttria-stablised" insert "yttria-stablized"

In Claim 5, Lines 14 delete ")" insert ", wherein said protective coating is less than 100µm thick"

In Claim 9, Line 4 delete "situated adjacent to said electrolyte"

In Claim 9, Line 5, insert "stainless steel" in between "a" and "metal"

In Claim 9, Line 6, delete " supporting said electrolyte without being in electrical" insert "not in"

In Claim 9, Line insert "and thereby not conductive" in between "electrode" and ", metal"

In Claim 9, Line 12 insert "(d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically act component"

In Claim 11, Line 2 delete "wherein the metal frame is stainless steel metal frame,"

***Claim Rejections - 35 USC § 112***

2. The rejections under 35 U.S.C 112, second paragraph, on claims 1-19, 24, 25 are withdrawn because claims have been amended.

***Allowable Subject Matter***

3. Claims 1-19, 24-25 are allowable.

4. The following is an examiner's statement of reasons for allowance: The closest reference to the prior art to the Applicant's claimed invention is U.S. Publication 2003/0096147 to Badding and US Patent 5,733,682 to Quadakkers et al.

Regarding claim 1, the prior art fails to teach a solid oxide fuel cell comprising

- (a) zirconia based electrolyte;
- (b) at least one electrode situated on said electrolyte;
- (c) a non-electrically active component wherein the component is not in contact with electrodes and thereby not conductive and component comprising at least one metal or metal oxide capable of at temperatures of above 625 °C,
  - (i) migrating to the surface of said component, and
  - (ii) being re-deposited on said at least one electrode; and
- (d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically active component
- (e) a protective coating situated on at least one surface of said component, said coating substantially preventing said at least one metal or metal oxide from leaving the surface, of said component, which is situated under said protective coating, said protective coating also being substantially impermeable to oxygen, wherein said protective coating is less than 100 µm thick

Regarding claim 5, the prior art fails to teach a solid oxide fuel cell comprising

- (a) zirconia based electrolyte;
- (b) at least one electrode situated on said electrolyte;

(c) a non-electrically active component wherein the component is not in contact with electrodes and thereby not conductive and component comprising at least one metal or metal oxide capable of at temperatures of above 625 °C,

(i) migrating to the surface of said component, and

(ii) being re-deposited on said at least one electrode; and

(d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically active component

(e) a protective coating situated on at least one surface of said component, said coating substantially preventing said at least one metal or metal oxide from leaving the surface, of said component, which is situated under said protective coating, said protective coating also being substantially impermeable to oxygen, wherein said at least one metal is Cr and said protective coating is selected from a group consisting glass, zirconia, and yttria-stablized zirconia, oxides of magnesium, titanium and zinc, said protective coating is less than 100 µm thick

Regarding claim 9, the prior art fails to teach a solid oxide fuel cell comprising

(a) zirconia based electrolyte;

(b) at least one electrode situated on said electrolyte;

(c) a non-electrically active component wherein said component is a stainless steel metal frame not in contact with any electrodes and thereby not conductive, said metal frame comprising at least one metal or metal oxide capable of at temperatures of above 625 °C,

(i) migrating to the surface of said frame, and

- (ii) oxidizing; and
- (iii) being re-deposited in the oxide form on said at least one cathode
- (d) the electrolyte comprises an edge, said electrolyte edge situated over the non-electrically active component.
- (e) a protective coating situated on said stainless steel frame, said coating substantially preventing said metal from leaving said metal frame, and protective coating being less than 100 m thick and being substantially impermeable to oxygen.

### ***Conclusion***

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1745

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

HC



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SUPERVISORY PATENT EXAMINER